

No. 652,899.

Patented July 3, 1900.

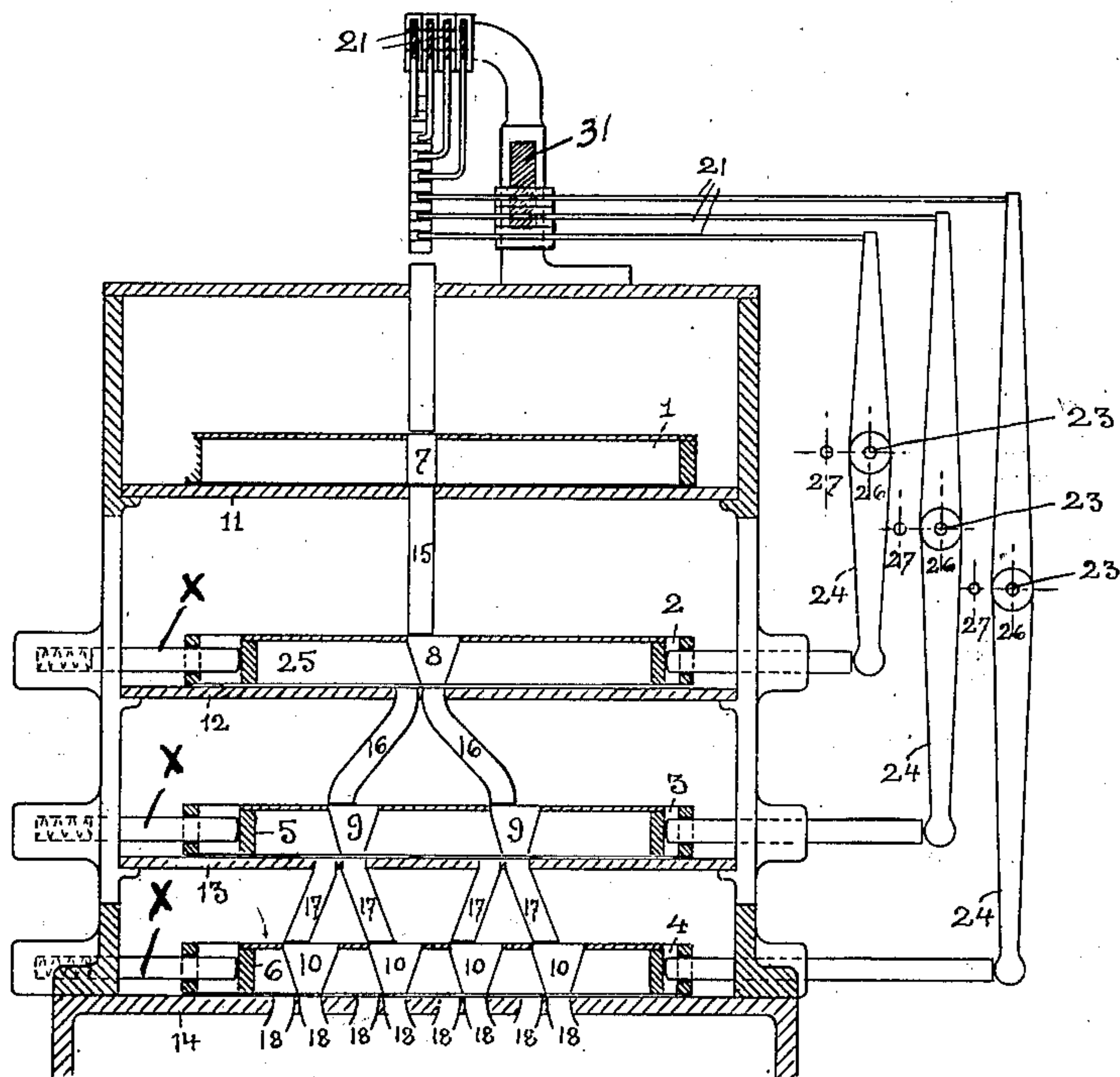
E. F. NYDAHL.
AUTOMATIC TYPE DISTRIBUTING MACHINE.

(Application filed Sept. 6, 1899.)

(No Model.)

5 Sheets—Sheet 1.

Fig. 1.



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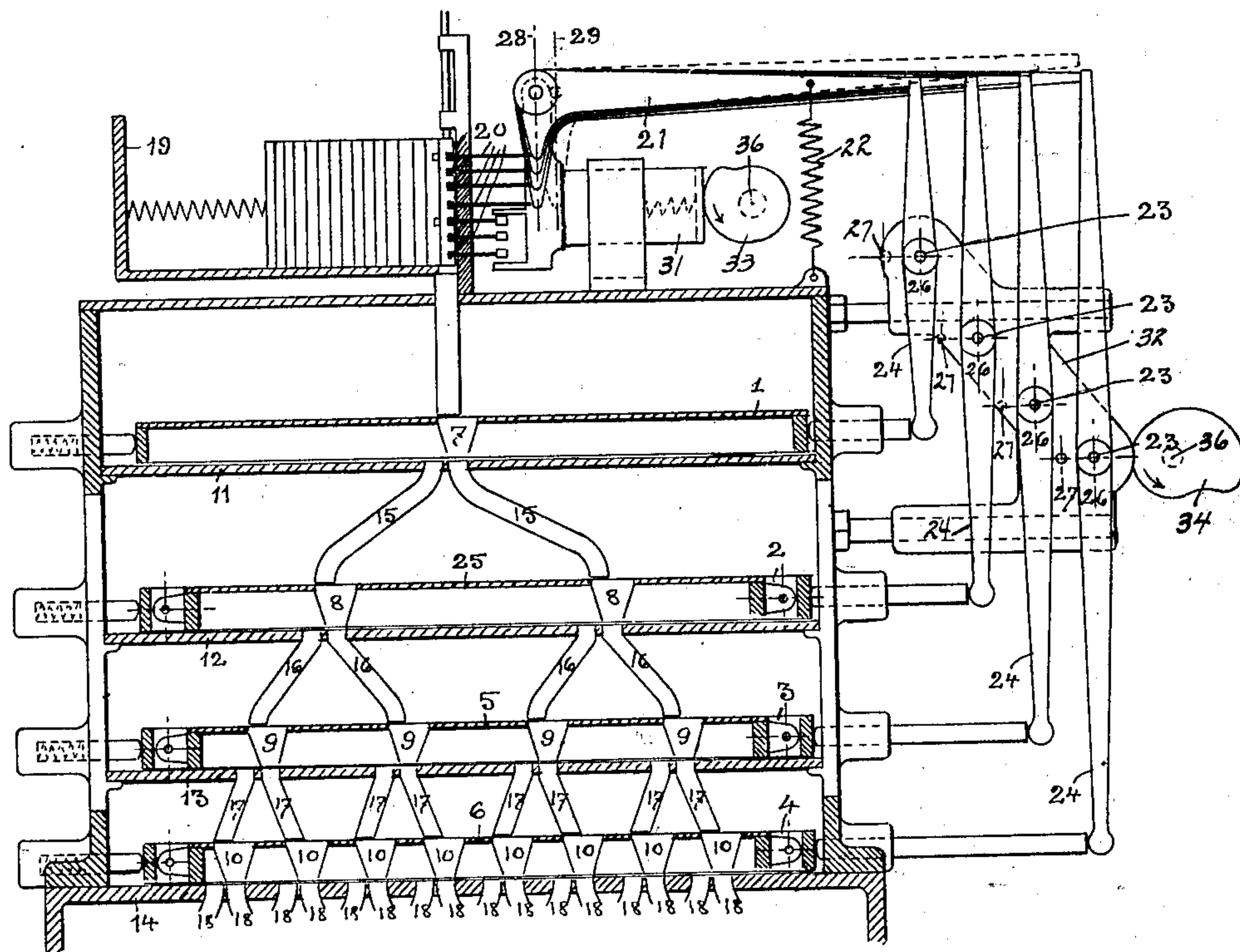
AUTOMATIC TYPE DISTRIBUTING MACHINE.

(Application filed Sept. 8, 1899.)

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Fig. 2.



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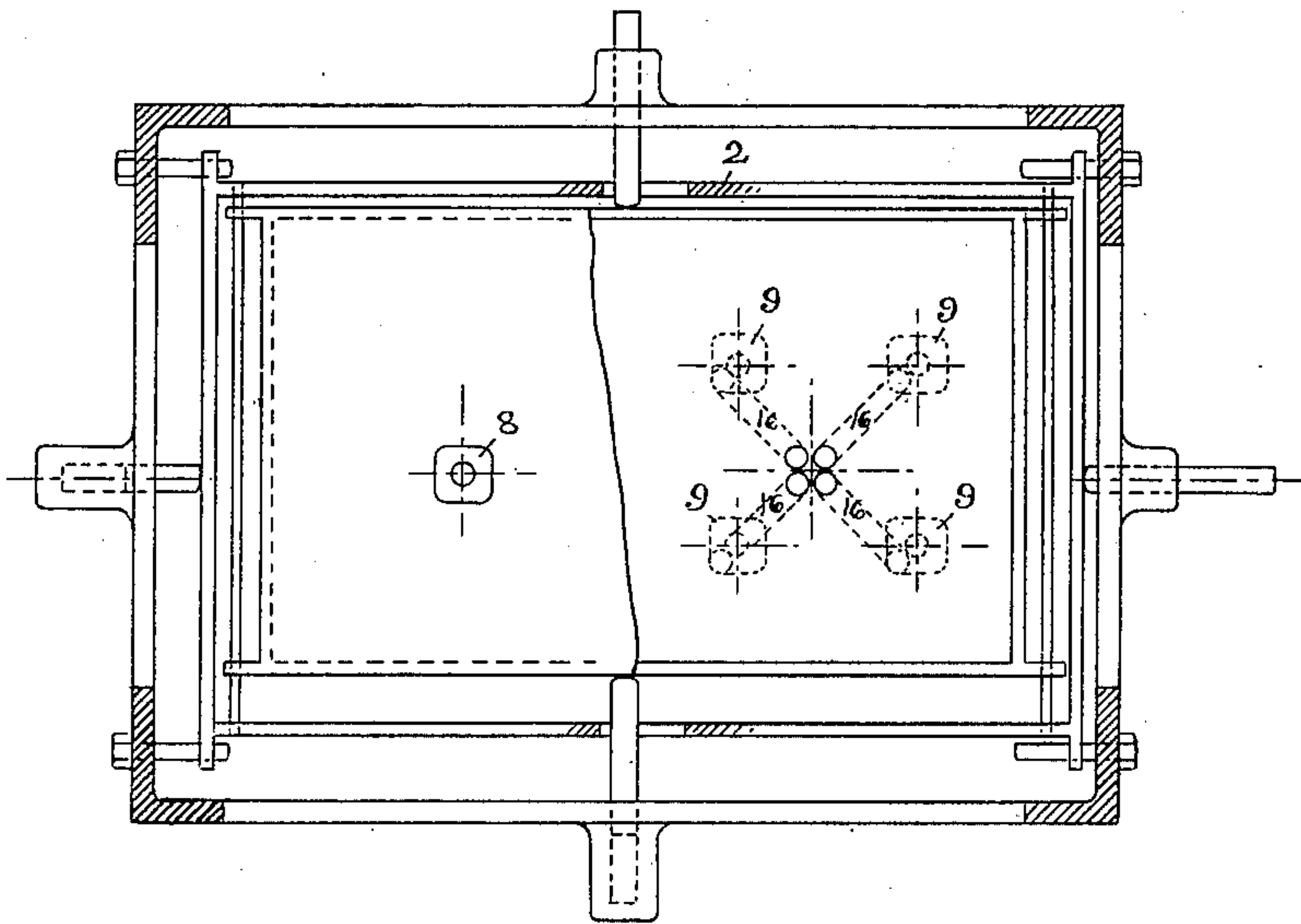
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Fig. 3.



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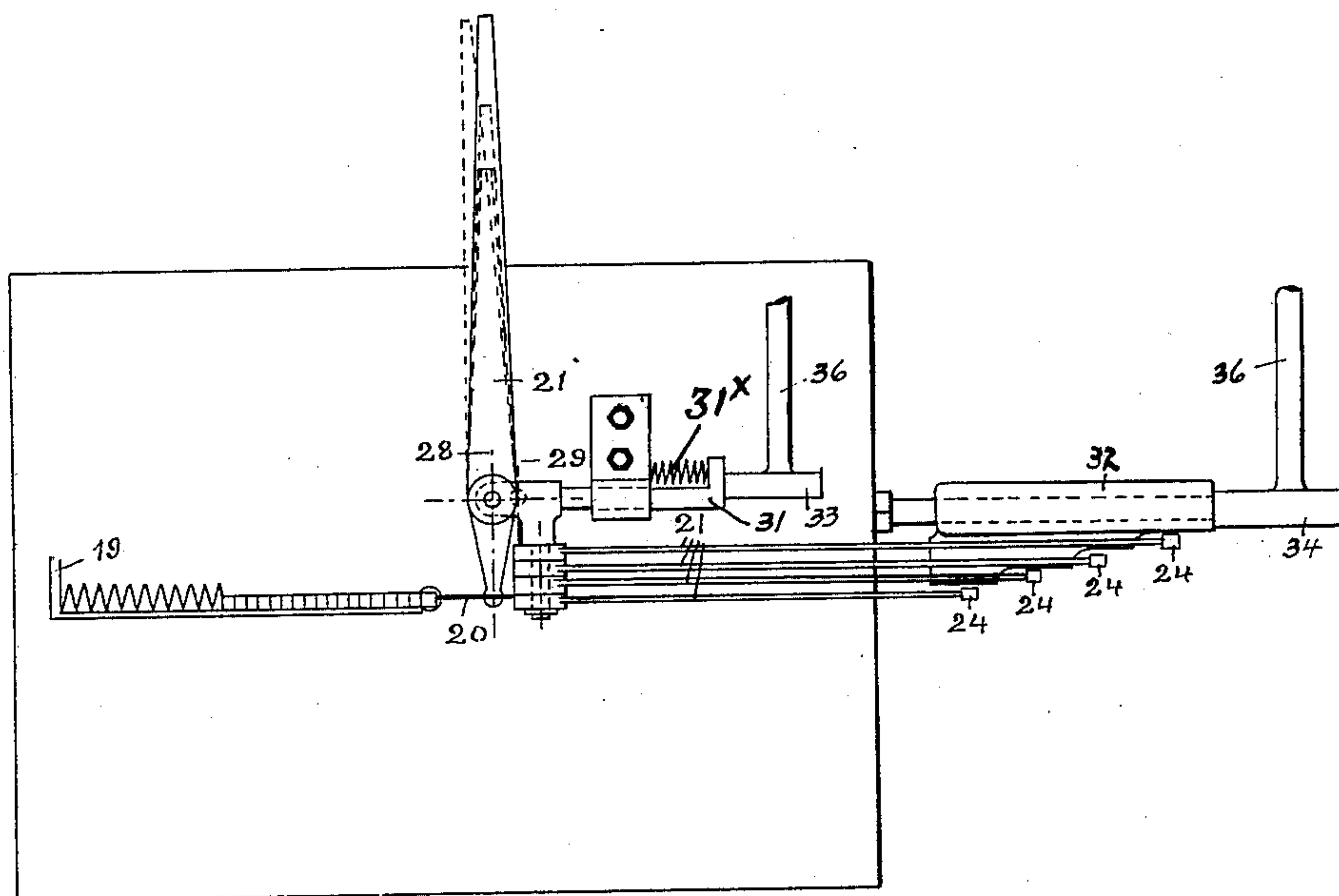
AUTOMATIC TYPE DISTRIBUTING MACHINE.

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5 Sheets—Sheet 4.

Fig 4.



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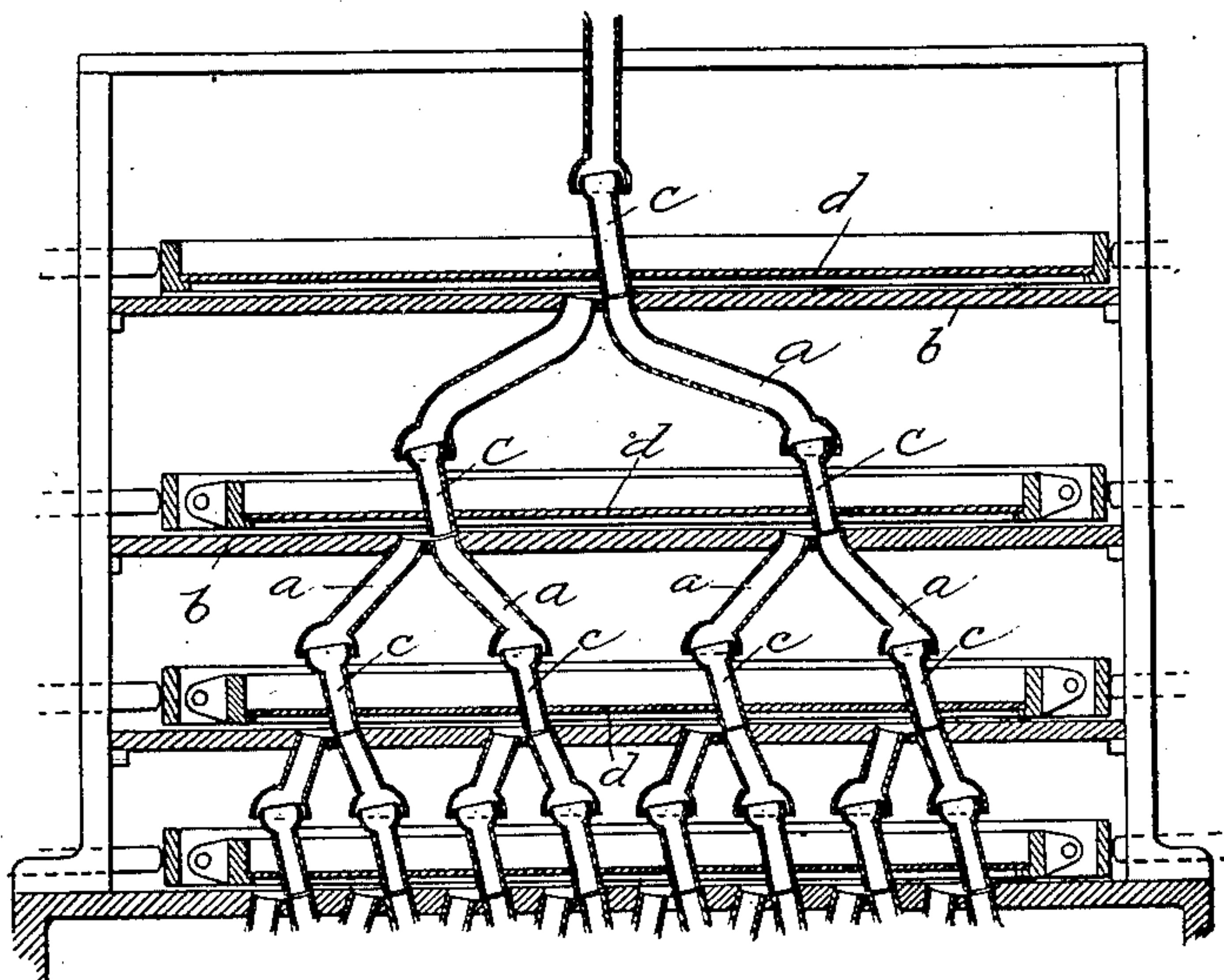
E. F. NYDAHL.
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(No Model.)

5 Sheets—Sheet 5.

Fig. 5.



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UNITED STATES PATENT OFFICE.

ERNST FREDRIK NYDAHL, OF STOCKHOLM, SWEDEN.

AUTOMATIC TYPE-DISTRIBUTING MACHINE.

SPECIFICATION forming part of Letters Patent No. 652,899, dated July 3, 1900.

Application filed September 6, 1899. Serial No. 729,623. (No model.)

To all whom it may concern:

Be it known that I, ERNST FREDRIK NYDAHL, engineer, of 18 Nybrogatan, Stockholm, in the Kingdom of Sweden, have invented certain new and useful Improvements in Automatic Type-Distributing Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters and figures of reference marked thereon, which form a part of this specification.

This invention relates to an automatic type-distributing apparatus—that is to say, an apparatus for conducting the type from the galleys to the proper compartment in the type-case.

Type-distributing machines of the known kind comprise longitudinal and transverse guides with longitudinal and transverse tracks and operate in such a manner that type not passing through the longitudinal guides are pushed before other transverse pushers until they reach their corresponding conveying-marks. By this means the type are arranged in accordance with their thicknesses and notchings upon a longitudinal side into a number of different marks.

The distributing apparatus which forms the subject of this invention presents the following essential characteristics: The distribution of the type is effected from above downward through a principal admission-tube, from which the type pass through various hoppers or tubular branches which are adapted to be suitably displaced. For example, the type may be conducted from the main tube in the downward direction through fixed branch tubes, which upper tubes are in communication by means of displaceable hoppers with lower fixed tubes, or the type may pass through displaceable branch tubes, the lower extremity of the upper of such tubes being displaceable above the upper extremity of the corresponding lower tubular branches, or, again, through hoppers arranged one above the other and adapted to be displaced in various directions laterally, in which the lower and smaller portion of a hopper is always within the upper and larger portion of the

hopper next beneath it. In such case it is not necessary that the types should be of different thicknesses in order to conduct a type to its appropriate place, all that is required being a suitable arrangement of the hoppers or branch tubes one above the other.

In the accompanying drawings, Figures 1 and 2 show vertical sections, taken at right angles one to the other, of the distributing apparatus. Fig. 3 is a horizontal section through the same. Fig. 4 is a partial view of the apparatus as seen from above, and Fig. 5 is a view of a modification.

The apparatus consists of a number of frames (in this case four) 1 2 3 4, arranged one above the other, which are capable of displacement in a horizontal direction. The three lower frames each consist of an outer and an inner frame, the latter, 25, 5, and 6, of which are displaceable in a direction at right angles to the outer frames, Fig. 3. Each frame is provided with a number of hoppers 7, 8, 9, and 10, which participate in the displacement of the frames, and beneath each frame is arranged a fixed bottom 11, 12, 13, or 14, into which fit the upper extremities of a number of tubes 15, 16, and 17, arranged between the frames. The lower open extremity of each hopper is always situated exactly over the upper open extremity in the next group of tubes, and over which of the said tubes the hopper comes depends upon the position given to the corresponding frame. The lower open extremity of each tube is always within the limits of the upper and wider portion of the hopper next beneath it. The topmost frame 1 therefore carries one hopper 7, which corresponds to the tubes 15, each of which leads to a hopper 8 in the frame 2. As above described, these hoppers 8 are capable of displacement in two directions at right angles one to the other and are therefore capable of assuming four positions, in each of which the hopper is situated directly above one of the tubes 16, four of which therefore lead from each hopper 8 in a downward direction above a hopper 9 in the frame 3. In this frame 3 are therefore provided eight hoppers 9. From each of these lead four tubes 17, each one of which proceeds to a hopper 10 in the next lower frame 4, so that there are thirty-two of these last-mentioned hoppers.

From each of these latter four tubes 18 proceed to separate compartments of the type-case. A type arriving in the hopper 7 is therefore able to pass through all the frames in order to finally enter one of the tubes 18. Into which of these tubes the type eventually falls of course depends upon the manner in which the frames are displaced—that is to say, upon the various positions which the same assume with respect to the fixed tubes arranged between them while the type is falling. Each type therefore requires a special and different displacement of the frames, and these displacements are determined by the type themselves and produced by means of a special mark apparatus. For this purpose each type is provided upon one edge, Fig. 2, with nicks or notches, and these nicks vary in number and nature for every kind of type. In carrying out this automatic distribution the type may be either in the galley or may be placed in a special frame or case, (for example, 19 in the drawings.) In this case the edges of the type which are provided with the nicks above referred to are turned toward a number of pins 20, which are adapted to enter the said nicks. Each of these pins is fixed to a lever 21, which when the corresponding pin is not engaged in a nick assumes the position shown in dotted lines. When, however, one of these pins is engaged in a notch, the corresponding lever is caused by the spring 22 to occupy the position shown in full lines. The outer oscillating extremity of the lever thereupon comes in the path of one end of a lever 24, pivoted at 23, the other end of this lever being adapted to displace one of the frames in the manner shown. One of these levers 24 is provided for each frame 1, 2, 3, or 4 and also for each frame 25, 5, and 6, Fig. 1, and for each of these is provided a corresponding lever 21 with pin 20. The pivots of the levers 24 move to and fro between the positions 26 and 27. When during this displacement the levers occupy the position indicated by the dotted lines, they permit the levers 24 to rotate upon the pivots 23 and the corresponding frames are not displaced. When, however, the levers 21 are caused to come in the path of the upper ends of the levers 24 in the manner above described, these latter receive a fixed support during the displacement of the levers 24 into the position 27, thus producing the displacement of the corresponding frame. It follows from this that each type before falling from the galley adjusts the frames in such a manner that these latter, by means of the hoppers and tubes, cause the type to fall into its proper division in the type-case. When the distributing apparatus has been adjusted in the manner above described by the type, these latter are released by the pins 20 in order to enable them to fall, and this is most conveniently effected by causing the levers 21 to swing outward from the position 28 into the position 29.

The frames 25, 5, and 6 are normally held to the right by means of the spring-pressed plungers X.

The operation of my type-distributing apparatus will be understood from the following example: The frame 1 separates the type into two groups—for example, sixty-four type in each group. The frame 2 divides these groups into four—that is to say, sixty-four fourths or sixteen type in each group. The frame 3 divides these groups into four—that is to say, sixteen fourths or four in each group. The frame 4 divides these groups into four—that is to say, four fourths or one type in each group. In this manner one hundred and twenty-eight type are distributed into their proper divisions.

The apparatus may be modified in such a manner that the hoppers are entirely dispensed with. In this case the tubes should be suitably flexible, and their lower ends should be fastened to the movable frames in such a manner that upon the displacement of these latter the movable tube ends may be adapted to be displaced to and fro over the fixed tube ends immediately below them. An apparatus of this character is shown in Fig. 5, in which the tubes *a'* are fixed at their upper ends in the bottoms 11 12 13 14, their lower ends being connected by a ball-and-socket joint to the upper ends of tubes *c*, the lower ends of the latter tubes extending through the frames, so as to be shifted thereby and abutting the upper ends of the tubes *a'*.

The levers 21 and 24 are supported by slides 31 32, operated by cams 33 34, mounted upon suitably-driven shafts 36. The slide 31 is moved in opposition to the cam 33 by a spring 31^x, and the slide 32 may be moved in opposition to its cam 34 in a similar or any desirable manner, not necessary here to illustrate.

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is—

1. In a type-distributing apparatus in combination, a receiver or holder for the dead-type, a series of distributing-frames, means controlled by the type for shifting said frames in predetermined position relatively to each other and directing-tubes.

2. In a type-distributing apparatus, in combination, a receiver or holder for the dead-type, a series of distributing-frames, means controlled by the type for shifting said frames in a predetermined position relative to each other, in planes at angles to each other and directing-tubes, substantially as described.

3. In a type-distributing apparatus in combination a receiver or holder for the dead-type, a series of distributing-frames, a series of bell-crank levers controlled by the type for controlling the frame-shifting levers and directing-tubes, substantially as described.

4. In a type-distributor, a holder for the

type, a series of frames, directing-hoppers carried thereby, and controlled by the type for shifting said frames to position said hoppers relatively to each other and directing-tubes, substantially as described.

5 5. In combination, the holder for the type, a stationary hopper receiving the discharge therefrom, a series of frames in different horizontal planes, directing-hoppers carried by
10 the same and means controlled by said type for shifting said frames to bring the same and the hoppers carried thereby in predetermined vertical planes and directing-tubes, substantially as described.

15 6. In combination, the frame or case for the

type, a stationary hopper, a series of sets of hoppers, said sets being arranged in different horizontal planes and means controlled by the type for shifting each set in a relative position to the other sets, and stationary directing-tubes for connecting said sets, substantially as described. 20

In testimony that I claim the foregoing as my invention I have signed my name in presence of two subscribing witnesses.

ERNST FREDRIK NYDAHL.

Witnesses:

TH. WAWRINSKY,
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